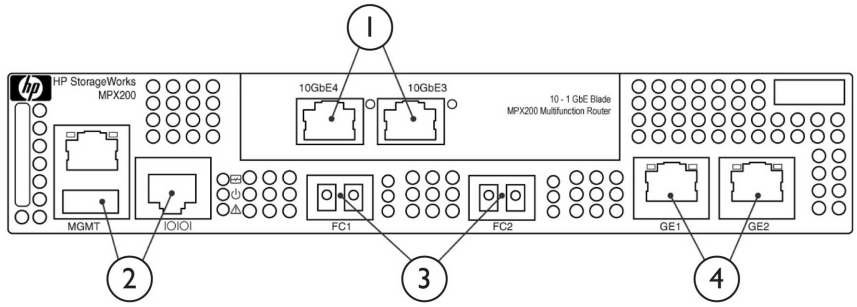
Overview



10GbE-1GbE blade shown in this picture

1. Two 10GbE (10GbE blade) or two 1GbE ports (1GbE blade)
2. Management ports, serial, 1GbE, and USB (not used)
3. Two 8Gb/s Fibre Channel (FC) ports
4. Two 1GbE ports
5. Optional Licensing: FCIP and Data Migration

As mid-range and enterprise businesses grow and deploy more physical/virtual servers and storage arrays, the amount of information required to manage, share, and protect IT resources continues to grow. The HP MPX200 Multifunction Router provides multi-protocol flexibility and unified SAN-based block storage which includes 10GbE and 1GbE iSCSI target support (3PAR StoreServ 10000/7000, T-Class/F-Class, P6000/EVA, XP24000/20000), 8Gb FC connectivity, and FCoE target support (3PAR StoreServ 10000/7000, T-Class/F-Class, , P6000/EVA) in one integrated solution. Multiprotocol connectivity is available for multiple 3PAR StoreServ 10000/7000, T-Class/F-Class, P6000/EVA, and P9000/XP storage systems, without incurring additional software management costs. The MPX200 includes 1GbE Fibre Channel over IP (FCIP) for remote replication with 3PAR StoreServ Storage Remote Copy and P6000/EVA/ P9000/XP Continuous Access. Adding FCIP support is easy with an optional license. In addition, FCoE for converged infrastructure trials and beta testing or live deployment is enabled on MPX200, at no charge. MPX200 delivers high-speed, up to 8TB/Hr per chassis, online/offline heterogeneous data migration for 3PAR StoreServ 10000/7000, T-Class/F-Class Storage, P6000/EVA, P9000/XP, SVSP and more. The MPX200 Data Migration License provides a powerful tool for migrating data from old to new arrays, from other vendors to HP. The Data Migration capability also provides the capability to migrate normal provisioned (thick) LUNs to thin provisioned storage saving space while reducing storage costs. The MPX200 enables modular multi-protocol SAN designs with increased scalability, stability, ROI and simpler to manage, secure storage solutions for virtualized server environments. The MPX200 scales from SMB to enterprise-class providing high-availability with dual hot-pluggable power supplies, fans, non-disruptive code load and dual router blades for no single point of failure. The MPX200 1U design allows for integration the same rack with a P6000/EVA storage system and other HP or non-HP arrays. IT environments can connect up to 4 3PAR StoreServ 10000/7000, T-Class/F-Class, P6000/EVA, or XP24000/20000 storage systems to a single MPX200 for iSCSI, reducing the complexity and cost of iSCSI connectivity. Modular multi-protocol SAN designs using the MPX200 increase scalability, stability, and ROI of your storage infrastructure.

The MPX200 Multifunction Router enables organizations to integrate and consolidate low-cost Ethernet connected servers with 3PAR StoreServ 10000/7000, T-Class/F-Class, P6000/EVA, and XP24000/20000 arrays by bridging the iSCSI protocol to the Fibre Channel protocol. This capability allows iSCSI servers to leverage shared SAN resources, improving asset utilization and application deployment while reducing costs. P6000/EVA with multi-protocol support and unique integration with HP P6000 Command View provides network storage at reduced infrastructure costs. Small and medium businesses now have a lower entry point to take advantage of SAN benefits. Large enterprises can deploy multi-protocol SANs easier and cost effectively in departments and remote offices.
New RoHS compliant HP Multifunction Router
NOTE: Restriction of Hazardous Substances Directive or RoHS is a directive adopted by the European Union that restricts the use of certain hazardous materials in the manufacture of various types of electronic and electrical equipment. The ROHS compliant products with new part numbers listed in this document are functionally equivalent to the corresponding products with old part numbers and are fully interchangeable.

Key Benefits:

Overview

- Delivering SAN-like benefits over the Ethernet IP network, the HP MPX200 Multifunction Router enables access to block storage across up to 4 3PAR StoreServ 10000/7000, T-Class/F-Class, P6000/EVA, or XP24000/20000 storage systems from an Ethernet IP network.
- Provides IT with a flexible and cost effective way to connect stranded servers to existing Fibre Channel storage, increasing return on investment.
- Enterprise-class high availability design for no single point of failure featuring non-disruptive code load, dual hot-pluggable power supplies, fans and router blades.
- Modular software and hardware design with easy licensing makes it easy to upgrade and enable additional protocols or add more ports when needed.
- Unmatched performance: 8 Gb/s Fibre Channel, 1 GbE and 10 GbE iSCSI/ FCoE ports deliver best in class performance in MB/s and IOPs.
- FCoE for converged infrastructure and connectivity support for legacy Fibre Channel SANs
- Advanced installation and configuration wizards allow set up in less than 25 minutes.
- Power efficient: typically dissipates 200W for a dual blade configuration.
- Extend access to FC SANs across Ethernet networks with the virtues of a FC SAN including:
  - Consolidated storage
  - Improved disk utilization
  - Improved IT efficiency
- FCIP for SAN over WAN: The MPX200 includes Fibre Channel over IP (FCIP) functionality enabling IT to implement low cost remote data replication over IP networks for 3PAR StoreServ 10000/7000, T-Class/F-Class Remote Copy and P6000/EVA, P9000/XP Continuous Access. IT can deploy MPX200 to provide iSCSI and FCIP connectivity simultaneously with an optional license
- Data Migration: Highly available and high speed block-based data migration between heterogeneous storage systems (online and offline, FC and iSCSI) that is easy to manage and saves time with low risk data migration with optional license

Key iSCSI/FCoE Features

- 3PAR StoreServ 10000/7000, T-Class/F-Class Storage, 1 GbE and 10 GbE iSCSI/FCoE support
- XP24000/20000, 1GbE and 10 GbE iSCSI support
- P6000/EVA, 1GbE and 10 GbE iSCSI/FCoE support
- Provides four Ethernet and two Fibre Channel ports per MPX200 blade
- Increases the flexibility of 3PAR StoreServ 10000/7000, T-Class/F-Class , P6000/EVA, and XP24000/20000 storage for integrated iSCSI support
- Delivers the benefits of SAN storage at a significant discount to FC SAN storage
- Supports Fabric Attach and Direct Connect (iSCSI/FCoE configurations) attachment to the 3PAR StoreServ 10000/7000, T-Class/F-Class , P6000/EVA, and XP24000/20000
- Concurrent FC and IP traffic is managed with high throughput enabling access for 300-600 iSCSI servers and 4096 LUNS per MPX200 chassis
- Unique and full integration with P6000/EVA and MPX200 management with Command View EVA
- iSCSI ready for the following operating systems:
  - Microsoft Windows, Hyper-V
  - VMware
  - Linux Red Hat
  - Linux SUSE
  - Oracle VM Server
  - Apple Mac OS X (via iSCSI Initiator from ATTO Technology)
  - Sun Solaris

    NOTES: StoreServ 10000/7000, T-Class/F-Class Storagesupported for iSCSI with Citrix XEN, Microsoft Windows, Oracle VM Server
  - Red Hat/SUSE Linux and Sun Solaris . XP arrays supported for iSCSI with Microsoft Windows and Red Hat/SUSE Linux. See HP SPOCK for most current configurations.

Overview

- Supports High Availability Multi-path Options for Linux, Microsoft Windows, Sun Solaris, and VMware.

Fibre Channel over IP (FCIP for SAN over WAN connectivity) Optional License

- Supports 3PAR StoreServ Remote Copy
- Supports FCIP for SAN over WAN remote data replication using HP Continuous Access P6000 andP9000/XP software.
- 1GbE FCIP routes. Note: For 10GbE blades, only 1GbE ports can be configured for FCIP routes
- Up to 4 FCIP Routes per MPX200 chassis.
  - High Performance FCIP SAN Extension
  - Software compression to maximize IP link utilization
- Throttle bandwidth on FCIP Routes.
- Consolidate iSCSI and SAN extension capabilities into single chassis.
  - Save 50% on cables, SFP's and rack space with only one piece of hardware to manage
- Ability to connect to an HP IP Distance Gateway remotely for lower overall cost of the solution.
- FCIP support for 3PAR StoreServ 10000/7000, T-Class/F-Class , P6000/EVA, P9000/XP
- Managed using the MPX200 CLI
- FCIP diagnostics feature to monitor WAN link quality and throughput

Heterogeneous Data Migration Optional License

- Easy to use data migration GUI with intuitive wizards to simplify use.
- SAN based, block level, HA and high performance data migration platform.
- Supports online* and offline heterogeneous data migration at very high-speeds, up to 8TB/Hr.
- Supports data migration between two data centers via FCIP or native IP.
- Remote online/offline data migration for support between two data centers
- Migrates normal provisioned storage to thin provisioned storage.
- SVSP data migration to another HP array including 3PAR StoreServ 10000/7000, T-Class/F-Class , P6000/EVA, or P9000/XP
- P63x0/P65x0/EVA destination or source array support.
- Data scrubbing capability also supported.
- No downtime required to plan & configure, migrations reduce implementation time and saves money.
- Application performance preservation: Array bandwidth throttling capability.
- CLI-based tool for powerful scripted use.
- Destination Arrays: P63x0/P65x0/EVA6400/8400/4400/4000/4100/6000/6100/8000/8100 models, XP10000/12000, XP 20000/24000, P9500, HP 3PAR StoreServ 10000/7000 Storage, 3PAR F-Class/T-Class on FC, P4000(online/offline Fibre Channel to iSCSI and iSCSI to iSCSI). P2000 G3 FC.
- Source Arrays: HP P63x0/P65x0/ EVA6400/8400/4400/4000/4100/6000/6100/8000/8100/5000/3000, MSA1000/1500/2000 ; XP 10000/12000, XP20000/24000, P9500,3PAR S-Class, and SVSP, IBM - DS3000, DS4000, DS5000, D6000, D8000 Series, XIV, nlStorwize V7000; EMC CX Series, AX Series, Symmetrix DMX, VMAX SE, VNX5500; Fujitsu ETERNUS DX400, DX440 S2, DX8400. HDS - AMS Family, WMS Family, USP, VSP families, Lightning 99xx V series, Thunder 95xx V series,TagmaStore Network StorageController model NSC55; NetApp FAS family (FC and iSCSI), Dell EquiLogic (iSCSI). Compellent Series 30/40. NEC D-Series. Xiotech Emprise 5000, Mag3D 4000.
- MPX200 heterogeneous data migration services are available through HP Services Storage and Data Migration Service, or data migration licenses can be purchased from HP or an authorized HP Partner to perform customer initiated data migration.

NOTEs:

- *Online data migration means a customer will not experience any downtime before and during the time data migration takes place between an older and newer storage system. A reboot is required to configure access to the new storage system.
- *Please check HP SPOCK for all current support, operating system, multipathing support matrix.
- *Data Scrubbing licenses available from Qlogic

Overview

What's new

New RoHS compliant HP Multifunction Router

NOTE: Restriction of Hazardous Substances Directive or RoHS is a directive adopted by the European Union that restricts the use of certain hazardous materials in the manufacture of various types of electronic and electrical equipment. The ROHS compliant products with new part numbers listed in this document are functionally equivalent to the corresponding products with old part numbers and are fully interchangeable.

Models

HP MPX200 Multifunction Router	**Hardware SKU's and Enablement Options**	
	HP MPX200 Multifunction Router 1 GbE Base Chassis Includes: • (1) chassis • (1) 1 GbE blade with (4) 1 GbE Ports and (2) 8Gb/s Fibre Channel Ports • rail kit • accessory kit • documentation • Includes redundant power supplies.	AP771B
	HP MPX200 Multifunction Router 1 GbE Upgrade Blade Includes: • (1) 1 GbE blade with (4) 1 GbE Ports and (2) 8Gb/s Fibre Channel Ports • accessory kit • documentation For multi-path (redundant blade for high availability) order both part numbers. The second hardware blade installs into the chassis that is included with AP771B or AP773B. **NOTE:** When configured for iSCSI bridging, HP recommends use of the same blade option type (1 GbE or 10GbE - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration	AP772B
	HP MPX200 Multifunction Router 10GbE - 1 GbE Base Chassis Includes: • (1) chassis • (1) 10GbE - 1 GbE blade with (2) 10 GbE Ports , (2) 1 GbE Ports and (2) 8Gb/s Fibre Channel Ports • rail kit • accessory kit • documentation • Includes redundant power supplies. **NOTE:** The name 10GbE -1 GbE denotes that the 10 GbE Blade includes (2) 10GbE ports and (2) 1 GbE ports	AP773B
	HP MPX200 Multifunction Router 10GbE - 1 GbE Upgrade Blade Includes: • (1) 10GbE - 1 GbE blade with (2) 10 GbE Ports , (2) 1 GbE Ports and (2) 8Gb/s Fibre Channel Ports • accessory kit • documentation For multi-path (redundant blade for high availability) order both part numbers. The second hardware blade installs into the chassis that is included with AP773B or AP771B. **NOTE:** HP recommends use of the same blade option type (1 GbE or 10GbE - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration.	AP774B

HP MPX200 Half Chassis or single blade FCIP License TA766A
Includes:

- License to enable FCIP functionality in one out of two bays (slots) in a MPX200 Chassis

HP MPX200 Full Chassis or dual blades FCIP License TA767A
includes:

- License to enable FCIP functionality for both bays (slots) in a MPX200 Chassis

NOTE: For multi-path (redundant blade for high availability) order full chassis license TA767A.
NOTE: If you install a single blade and a half-chassis license initially, and then install a second blade, a second half-chassis license is required.

Data Migration Software SKU's

HP MPX200 1TB Full Chassis Data Migration License TA762A
Includes:

- License to migrate 1 TB of data using a MPX200 Chassis
  - 1 License Entitlement Certificate
  - 1 License Key Request Form
  - 5GB of data migration is complementary; this is useful for DM testing, demos, etc, without using capacity from acquired licenses
- Includes one year of HP software support 9x5 (software technical support and software product and documentation updates)

NOTE: To add additional 1TB licenses order as many 1TB TA762A licenses as needed.

HP MPX200 5TB Full Chassis Data Migration License TA763A
Includes:

- License to migrate 5 TB of data using a MPX200 Chassis
  - 1 License Entitlement Certificate
  - 1 License Key Request Form
- Includes one year of HP software support 9x5 (software technical support and software product and documentation updates)

NOTE: To add additional 5B licenses order as many 5TB TA763A licenses as needed.

HP MPX200 Full Chassis 1 Array Data Migration License TA764A
Includes:

- License to migrate data from or to a single array using a MPX200 Chassis
  - 1 License Entitlement Certificate
  - 1 License Key Request Form
- Includes one year of HP software support 9x5 (software technical support and

Models

software product and documentation updates)

NOTE: The MPX200 data migration has a unique fan-in/fan-out licensing model. Using this particular license, data can be migrated from multiple arrays to a single array or from a single array to multiple arrays. To add additional array licenses order as many TA764A array licenses as needed.

Product Highlights

Configuration Support

The MPX200 Multifunction Router is fully compatible with the HP H-series, B-series and C-series FC switches. For complete interoperability information please check:

- http://www.hp.com/go/SANdesign
- http://www.hp.com/go/SANdesignguide

For iSCSI/FCoE, up to 4 (any combination) P10000/3PAR, P6000/EVA or P9000/XP storage systems can be connected to the same MPX200 Router in a single blade configuration or dual blade high availability configuration.

Manageability

- CLI or GUI and wizards for simplified data migration.
- Command View EVA is integrated with the MPX200 GUI for unified management of the MPX200 using EVA element management.

Scalability

Initial support: Refer to the guidelines described in the product user guide available on the Storage Networking product page and the HP SAN Design Reference Guide available at: http://www.hp.com/go/SANdesignguide

Software Components, Standard

P6000 Command View

HP P6000 Command View provides the capability to manage the P6000/EVA storage system(s) and is installed on an existing Storage Management Appliance, a management server or a NAS server. This powerful tool provides an easy mechanism to manage P6000/EVA storage systems in a SAN configuration. P6000 Command View is purchased separately from the MPX200 or the P63x0/P65x0/EVA XCS media kit.

Service and Support, HP Care Pack and Warranty Information

Warranty

(1-1-1) Hardware Warranty - One-year on-site warranty, 8x5, next business day response, installation not included.
NOTE: The hardware warranty covers firmware and embedded non-saleable software.

HP Service & Warranty Support

HP Service & Warranty Support
Additional Warranty protection or Installation packages can be purchased.
NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details. HP provides a one-year, hardware limited warranty, fully supported by a worldwide network of resellers and service providers.

For increased uptime, productivity and ROI -HP Care Pack packaged services for Storage

These days, you need to get the most out of your storage investment-you can't afford not to. When you buy HP storage products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as: flexible, reliable and scalable as your storage. Unlike storage-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Storage.

Protect your business beyond the warranty

When it comes to robustness and reliability, standard warranties on today's computing equipment have matured just as the technologies have matured. Good news on some fronts-but also a source of potential problems and subsequent consequences that come from depending on standard warranties alone. Standard warranty protects against product defects and some causes of downtime- but not the business. By using a standard approach to warranty uplifts, such as HP Care Pack Services, you can reduce downtime risks and be more certain of operational consistency for both mission-critical and standard business computing. Simply put, HP Care Pack Services normalize the warranty of combined products - helping you proactively guard against unplanned downtime.

Extending warranties with HP Care Pack Services

For cost-effective upgrading or extending your standard warranty, HP Care Pack Services offer a suite of standard reactive hardware and software support services that are sold separately, or combined as with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition, with HP Proactive Select we offer an innovative approach to service delivery that gives you the flexibility to acquire the specific proactive services you need today, then add services as your needs evolve. HP Proactive Select offers a broad set of technical or per-event type service options - including server, storage, and network, SAN device, and software, environment, installation and education services. Services that you can mix and match depending on your specific requirements, from preliminary planning and equipment delivery to installation, configuration, integration, and testing, through every level of ongoing support. Our HP Care Pack packaged services for Storage assures help when you need it most. And for many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

Service and Support, HP Care Pack and Warranty Information

HP Care Pack Services recommended for optimal satisfaction of all deployments of your product.

3-Year HP Support Plus 24

For a higher return on your storage investment, HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. Available 24X7, this 3-year combined reactive support option delivers onsite hardware support and over-the-phone software support around-the-clock. Leverage the full strength of HP Technology Services - IT can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how across their entire infrastructure.

Benefits

- Improve uptime with responsive hardware and software services.
- Enjoy consistent service coverage across geographically dispersed sites.
- Update HP software at a predictable cost
- Increase customer satisfaction-with no interoperability gaps.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf

HP Enhanced Implementation Service for SAN's

For IT environments that are building a new SAN or expanding their existing one, we offer the HP Enhanced Implementation Service for SANs. This provides complete design and implementation services for Fibre Channel, FCOE, FCIP, SAS and iSCSI SAN connectivity components. Covering all major SAN connectivity technologies including virtual as well as physical hosts, no competitor offers a more complete end to end SAN design and implementation service, ensuring comprehensive optimal SAN connectivity tailored to your specific environment.

Benefits

- Ensures optimal SAN connectivity tailored to your specific environment.
- Allows your IT resources to stay focused on their core tasks and priorities.
- Reduces implementation time, impact and risk to your storage environment.
- Helps ensure a successful implementation for complex deployments by providing HP project management.

http://h20195.www2.hp.com/v2/GetPDF.aspx/5981-8527EN.pdf

Additional Services

Additional Services that will enhance the user experience in many product deployments.

3-Year HP Proactive 24 for SANs

As an alternative to our recommended support level, for IT environments that demand enhanced operational effectiveness and proactive problem identification.

HP Proactive 24 Service (P24) integrates hardware and software support to help you improve the stability and operational effectiveness of your IT environment. An HP Account Manager acts as your primary point of contact to ensure that HP meets your support needs effectively.

P24 provides the maximum value when multiple technologies in the environment (e.g. servers, storage, SAN and the network), are all covered. It provides an environment-wide view and consistent support of all of these components which affect stability of your key applications.

Choose P24 when you want to:

- Enhance operational effectiveness with proactive problem identification and recommendations from HP.
- Partner with technical experts who help coordinate support, provide hands-on assistance, and share knowledge with your staff.
- Rapidly access support and expertise spanning your environment.
- Obtain personalized services tailored to your business environment and critical success factors.
- Anticipate necessary change - and execute it correctly the first time.
- Efficiently manage infrastructure resources to meet your performance objectives.

http://h20219.www2.hp.com/services/cache/11157-0-0-225-121.html

HP Assessment Service for SANs

For IT environments interested in improving availability of their SAN and decreasing potential for unplanned downtime:

The HP Assessment Service for SANs offers customized technical and operational guidance to IT employing HP storage subsystems and the interconnecting storage area network (SAN) infrastructure. In a typical engagement, HP or one of our authorized business partners will perform a detailed discovery using HP's proprietary toolset to gain an understanding of the configuration of your storage devices and SAN topology.

The findings from this process will be compared to HP best practices and industry standards as defined by IT Service Management (ITSM) disciplines. The results of the evaluation will be quickly and efficiently processed into information you can leverage. This information, in the form of a comprehensive HP SAN Assessment report, will be summarized by HP or one of our authorized business partners with recommendations that are intended to improve availability levels and ongoing management of your storage and SAN environment.

http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-2941ENW.pdf

HP Storage and Data Migration Service

Migrating to a new SAN platform? Concerned about losing irreplaceable data and disrupting your ongoing operations?

HP Storage and Data Migration Services help you lessen the risk of data loss; minimize threats to data integrity and more during your move. Let an HP

experienced storage specialist rapidly and securely migrate within your data center or across the globe.
http://h20219.www2.hp.com/services/us/en/consolidated/infrastructure-storage-data-migration.html

HP eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal
The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base).
- Efficient logging and tracking of support cases.
- Collaboration with other business and IT professionals.
- Download of patches and drivers.
- Access to diagnostic tools.
- Proactive notification of relevant information.

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: http://www.hp.com/support

Remote Support Technology (RST)-HP Remote Support Pack
Taking a more proactive approach to IT support, the HP Remote Support pack plug-in module easily integrates with HP Systems Insight Manager to provide a powerful, unified "single pane of glass" solution for onsite and remote management.

HP Remote Support Pack enhances HP Systems Insight Manager with intelligent event diagnosis plus the automatic submission of hardware event notifications securely to HP support, including acknowledgment and status returns. It adds remote configuration collections to allow the delivery of assessment and proactive services for your SAN storage and HP-UX environments.

Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online.
www.hp.com/learn/storage

HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit: http://h20129.ww2.hp.com/services/cache/77318-0-0-225-121.html.

Configuration Information

Step 1 - Base Configuration and FCIP enablement Option

Select one:

Model	Model Description	Part Number
MPX200 Multifunction Router 1 GbE Base Chassis	Includes one chassis, one 1 GbE blade, redundant power and cooling modules, rail kit, accessory kit and documentation **NOTE:** Requires optical FC transceivers and cables listed in **step 2**.	AP771B
MPX200 Multifunction Router 1 GbE Upgrade Blade	Includes one 1 GbE blade to mount in existing chassis, accessory kit, and documentation **NOTE:** For multi-path (redundant blade) support order both part numbers. AP772B installs into the chassis that is included with AP771B or AP773B. HP recommends use of the same blade option type (1 GbE or 10GbE - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration. **NOTE:** Requires optical FC transceivers and cables listed in **step 2**.	AP772B
MPX200 Multifunction Router 10 -1 GbE Base Chassis	Includes (1) chassis, (1) 10GbE - 1 GbE blade, redundant power and cooling modules, rail kit, accessory kit, and documentation. **NOTE:** Requires optical FC and 10GbE SFP+ transceivers and cables listed in **step 2**.	AP773B
MPX200 Multifunction Router 10 - 1 GbE Upgrade Blade	Includes (1) 10GbE - 1 GbE blade to mount in existing chassis, accessory kit, and documentation. **NOTE:** For multi-path (redundant blade) support order both part numbers. AP774B installs into the chassis that is included with AP773B or AP771B. HP recommends use of the same blade option type (1 GbE or 10GbE - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration **NOTE:** Requires optical FC and 10GbE SFP+ transceivers and cables listed in **step 2**.	AP774B
HP MPX200 Half Chassis FCIP License	Includes (1) license to enable FCIP functionality in one out of two bays (slots) in a MPX200 Chassis. License comes in the form of an entitlement certificate and 1 license key request form.	TA766A
MPX200 Multifunction Router Full Chassis FCIP License	Includes (1) license to enable FCIP functionality for both bays (slots) in a MPX200 Chassis. License comes in the form of an entitlement certificate and 1 license key request form. **NOTE:** For multi-path (redundant blade for high availability) order this full chassis license.	TA767A

Step 2 - Additional Software Options

Types of data migration licenses

The two types of data migration licenses are capacity-based and array-based licenses.

Capacity-based licenses

Capacity-based licenses allow you to migrate data up to a specific limit designated by the applied license key. This type of license is available in additive variants of 1 TB and 5 TB capacities, which can be consumed by one or more migration jobs that you specify. Every time you configure a data migration job, the available capacity is reduced by an amount equivalent to the size of the source LUN being migrated. The MPX200 does not allow you to add migration jobs when the job size exceeds available

Configuration Information

migration licenses.

Array-based licenses

Array-based licenses allow you to migrate unlimited amounts of data to and from the specific array that is licensed. These licenses are available in variants of SINGLE-ARRAY and 3-ARRAY capacity. The licensed array may be used as either a source or destination array while configuring jobs for data migration.

MPX200 Multifunction Router 1 TB Data Migration License	Includes (1) license to migrate 1 TB of data using a MPX200 chassis. License comes in the form of an entitlement certificate and 1 license key request form.	TA762A
MPX200 Multifunction Router 5 TB Data Migration License	Includes (1) license to migrate 5 TB of data using a MPX200 chassis. License comes in the form of an entitlement certificate and 1 license key request form.	TA763A
MPX200 Multifunction Router 1 Array Data Migration License	Includes (1) license to migrate data from or to a single storage array using a MPX200 chassis. License comes in the form of an entitlement certificate and 1 license key request form. **NOTE:** The MPX200 data migration has a unique fan-in/fan-out licensing model. Using this particular license, data can be migrated from multiple arrays to a single array or from a single array to multiple arrays.	TA764A
Supported Direct Attach Copper 10GbE SFP+ Ethernet cables	HP 10-GbE SFP+ 0.65m Direct Attach Cable	JD095B
	HP 10-GbE SFP+ 1.2m Direct Attach Cable	JD096B
	HP 10-GbE SFP+ 3m Direct Attach Cable	JD097B
	HP 10-GbE SFP+ 5m Direct Attach Cable	JG081B
	HP ProCurve 10-GbE SFP+ 1m Direct Attach Cable	J9281B
	HP ProCurve 10-GbE SFP+ 3m Direct Attach Cable	J9283B
	HP ProCurve 10-GbE SFP+ 7m Direct Attach Cable	J9285B
	HP ISS 10-GbE SFP+ 0.5m Direct Attach Cable	487649-B21
	HP ISS 10-GbE SFP+ 1m Direct Attach Cable	487652-B21
	HP ISS 10-GbE SFP+ 3m Direct Attach Cable	487655-B21
	HP ISS 10-GbE SFP+ 5m Direct Attach Cable	537963-B21
	HP ISS 10-GbE SFP+ 7m Direct Attach Cable	487658-B21
	Cisco 10-GbE SFP+ 3m Direct Attach Cable SFP-H10GB-CU3M	AP784A
	Cisco 10-GbE SFP+ 5m Direct Attach Cable SFP-H10GB-CU5M	AP785A
	Cisco 10-GbE SFP+ 7m Active Direct Attach Cable	QK701A
	Cisco 10-GbE SFP+ 10m Active Direct Attach Cable	QK702A
	Brocade 10-GbE SFP+ 1m Direct Attach Cable XBR-TWX-0101	AP818A
	Brocade 10-GbE SFP+ 3m Direct Attach Cable XBR-TWX-0301	AP819A
	Brocade 10-GbE SFP+ 5m Direct Attach Cable XBR-TWX-0501	AP820A

Configuration Information

Step 3 - Additional Hardware Options

Optical FC SFP + Transceivers	8 Gbps Short Range	AJ718A
Optical 10GbE SFP+ Ethernet Transceivers	10GbE Short Range Ethernet 10GBase-SR	455883-B21
EVA Loopback Connector	The loopback connector is used when an available EVA host port is not used. **NOTE:** All EVA host ports must be filled with either a cable or loopback connector.	AJ706A

Optical cables

Distance - Maximum	HP Standard OM2 Cable	HP Standard OM3 Cable	HP PremierFlex OM3+ Cable	HP PremierFlex OM4 Cable
8Gb performance:	50 meters	150 meters	150 meters	190 meters
4Gb performance:	150 meters	380 meters	380 meters	400 meters
2Gb performance:	300 meters	500 meters	500 meters	

HP PremierFlex OM4 Optical Cables

HP 1m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK732A
HP 2m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK733A
HP 5m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK734A
HP 15m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK735A
HP 30m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK736A
HP 50m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK737A
HP 10m PremierFlex OM4 MPO/MPO 8 fiber Multi-Mode Optical Cable	QK729A
HP 50m PremierFlex OM4 MPO/MPO 8 fiber Multi-Mode Optical Cable	QK731A

HP OM3 Cables

HP .5m OM3 LC/LC Multi-Mode Optical Cable	AJ833A
HP 1m OM3 LC/LC Multi-Mode Optical Cable	AJ834A
HP 2m OM3 LC/LC Multi-Mode Optical Cable	AJ835A
HP 5m OM3 LC/LC Multi-Mode Optical Cable	AJ836A
HP 15m OM3 LC/LC Multi-Mode Optical Cable	AJ837A
HP 30m OM3 LC/LC Multi-Mode Optical Cable	AJ838A
HP 50m OM3 LC/LC Multi-Mode Optical Cable	AJ839A

RJ45 Copper Cables for 1 GbE iSCSI and MGMT ports

CAT 5e for 1 GbE iSCSI or MGMT ports

CAT 5e cable, RJ45 to RJ45, M/M 1.2m (4ft)	C7533A
CAT 5e cable, RJ45 to RJ45, M/M 2.1m (7ft)	C7535A
CAT 5e cable, RJ45 to RJ45, M/M 4.3m (14ft)	C7536A
CAT 5e cable, RJ45 to RJ45, M/M 7.6m (25ft)	C7537A
CAT 5e cable, RJ45 to RJ45, M/M 15.2m (50ft)	C7542A

Technical Specifications

Specifications	Arrays supported	HP P65xx/P63xx, EVA6400, EVA8400; EVA4100, EVA6100, EVA8100, EVA8000, EVA6000, and EVA4000; EVA4400 XP24000/20000, XP10000/12000, P9500, 3PAR StoreServ 10000/7000, T-Class/F-Class , P4000 (Data Migration only), P2000 (Data Migration only) **NOTE:** Not all arrays listed are supported on all protocols.
	Array Connectivity Mode	Fabric Attach (all supported models) Direct connect support (iSCSI/FCoE only, all supported P1000/3PAR, P6000/EVA models)
	Maximum Number of MPX200 Multifunction Router blades	2 MPX200 Multifunction Router blades supported per EVA (recommended for redundancy).
	Maximum Number of storage systems	4 Fibre Channel storage systems (for iSCSI/FCoE target support) per MPX200
	Management Software Support	Configure FC LUNs and iSCSI LUNs through P6000/EVA Command View v9.1.x and above. Please check SPOCK for supported versions.
	OS Support (iSCSI)	Microsoft Windows, Hyper-V Linux Red Hat Linux SUSEOracle VM Server Sun Solaris VMware Apple Mac OS X (via iSCSI Initiator from ATTO Technology), Apple XSAN For operating system version support, see the product user guide available on the Storage Networking product page and the HP SAN Design Reference Guide available at: http://www.hp.com/go/sandesignguide. For the latest product support information, see the Single Point of Connectivity Knowledge (SPOCK) on the HP website: http://www.hp.com/storage/spock. **NOTE:** You must sign up for an HP Passport to access this website.
	Host Platform Support	Any server running supported OS
	Cluster Support	Yes, Microsoft Failover Cluster, MSCS, please refer to SPOCK for detailed support matrix.
	Fibre Channel Interface	Two optical ports - 8 Gb/s
	FC Transceiver	8 or 4 Gb/s SFP supported; 8Gb/s @ 8 Gb/s, 4Gb/s, and 2Gb/s speed; 4Gb/s @ 4Gb/s and 2Gp/s speed
	FC Connectivity Mode	Fabric attached Optical, connected as an N-Port
	IP Interface	(4)1000BaseT copper, 1 GbE iSCSI ports per blade in1 GbE blade. (1) 1000BaseT copper, 1GbE MGMT port and (1) RS232c MGMT port in 1 GbE blade and in 10 - 1 GbE blade. (2) 10 GbE SFP+ optical iSCSI ports and (2) 1000BaseT copper 1 GbE iSCSI ports in 10 - 1 GbE blade. **NOTE:** 10 GbE SFP+ ports do not function as1 GbE ports. Conforms to IPv6 and IPv4 standards

Technical Specifications

iSCSI Initiator Support	• Microsoft iSCSI Initiator (32-bit and 64-bit versions) • Linux iSCSI Initiator (32-bit and 64 it versions) • Oracle VM iSCSI initiator • ATTO Macintosh iSCSI Initiator • Sun Solaris iSCSI Initiator • VMware iSCSI Initiator	
iSCSI Network Card Support	• Any HP 10 GbE or 1 GbE NIC • Apple, Sun supported 10 or 1 GbE NICs • NIC Teaming is supported for extra redundancy **NOTE:** Standard 10/100 NIC cards are not supported.	
TCP/IP Offload Engine Support (TOE)	• HP NC522SFP; NC524SFP; NC510x; NC512m/i; NC532m/i; NC3xxT/m/i/F; QM4062 • Qlogic QLA4052c, QLE4062c iSCSI HBA	
FCoE CNA Support	**NOTE:** Support is operating system and array dependent. • HP CN1100E (Part # BK835A) • HP CN1000E (Part # AW520A) • HP CN1000Q (Part #BS668A) For the latest product support information, see the Single Point of Connectivity Knowledge (SPOCK) on the HP website: http://www.hp.com/storage/spock.	
IP Security	• CHAP User name and password authentication. • Password encryption of saved configuration file.	
iSCSI Boot	Linux, Windows, VMware	
Multi-Path support	Windows	Microsoft MPIO, HP MPIO DSM for EVA
	Linux	Device Mapper
	Oracle VM	Native Device Mapper
	Sun	MPxIO
	VMware	Native software MPxIO
Max. Pending Commands	Default value of 256	
Host Interface	1 GbE ports use standard TCP/IP connection, RJ45 connector 10 GbE ports use 10GbE SFP+ LC optical cables	
Distance	1 GbE Copper CAT-5e or CAT-6 twisted pair 100meter maximum 10 GbE Optical SR transceivers up to 300m with OM3 fiber cable; up to 50m with OM2 fiber cable	
Host Platform Support	Any 32-bit or 64-bit servers running the supported OS	
iSCSI Performance	half duplex (1 GbE blade)	100,000 read IOPs 92,000 write IOPs 380 MB/sec read bandwidth 340 MB/sec write bandwidth
	full duplex (1 GbE blade)	97,000 IOPs 415 MB/sec bandwidth
	half duplex (10 -1 GbE blade)	120,000 read IOPs 96,000 write IOPs 1200 MB/sec read bandwidth 450MB/sec no jumbo write bandwidth 800MB/sec jumbo write bandwidth

		full duplex (10 -1 GbE blade)	120,000 IOPs 1000 MB/sec bandwidth
	Maximum Host Connection Design Limits for iSCSI*	Architectural Limits:1024 connections, 1024 iSCSI sessions, 64 targets, 1024 LUNs per target maximum and 4096 total LUNs per chassis. * Please see the product user guide available on the Storage Networking product page and the SAN Design Guide for latest tested and supported configurations located at: http://www.hp.com/go/sandesignguide.	
Installation	User installable, but recommended field service install		
Environmental Specifications	1U rack mount kit Non-cable-side to cable-side airflow; power from cable-side; 1U, 19-in. EIA rack-compliant Cooling: Three variable speed fans per PCM with back-to-front airflow.		
		Condition	
	Environment	**Operating**[1]	**Non Operation**[2]
	Temperature	5° to 40° C (41° to 104° F)	-25°C to 70° C (-40° to 158° F)
	Humidity[3]	5 to 90%, non-condensing	5 to 93%, non-condensing
	Altitude	3 km	15 km
	Shock	IEC 68-2, 4g, 11ms, 20 repetitions	IEC 68-3, 30g, 292 ips, 3 repetitions, 3 axis
	Vibration[4]	IEC 68-2, 5-500Hz, random, 0.21G rms, 10 minutes	IEC 68-2, 5-500Hz, random, 2.09G rms, 10 minutes
	Power AC input maximum	2.5A@100-125 VAC; 1.25A@200-240 VAC	
	Frequency Range	47 to 63 Hz	
	Nominal Frequency Range	50 Hz to 60 Hz	
	Power Dissipation	275W maximum (optics included)	
	[1] Maximum temperature of 40°C should be strictly satisfied at air inlet portion. [2] Non-operating conditions include both packing and unpacking conditions unless otherwise specified. [3] The above specifications of vibration are applied to all three axes. For shipping or storage conditions, this product shall be packed with factory packing.		
Physical Size	Height	1U (1.72 in/4.37 cm)	
	Width	17 in (43.18 cm)	
	Depth	24.9 in (63.25 cm)	
	Weight	20 lb (9.07 kg)	

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